

CLAIMS:

I Claim:

1. An inflator module for inflating an airbag with gas, comprising:

an elongate housing; and

5 an elongate block of propellant arranged in said housing and generating gas when burning.

2. The inflator module of claim 1, wherein said propellant has a substantially uniform cross-sectional shape in a longitudinal direction of said propellant.

10 3. The inflator module of claim 1, wherein said propellant has a length in the longitudinal direction exceeding ten times a width or thickness of said propellant in a direction transverse to the longitudinal direction.

15 4. The inflator module of claim 1, wherein said housing includes an opening through which gas flows to inflate the airbag.

5. The inflator module of claim 4, wherein said opening is elongate and oriented in the same direction as said propellant.

20 6. The inflator module of claim 4, further comprising an elongate screen arranged adjacent said opening and opposite said propellant.

25 7. The inflator module of claim 1, further comprising igniter material arranged on said propellant and substantially coextensive with said propellant in a longitudinal direction such that upon ignition of said igniter material, said propellant begins to burn across its entire length.

8. The inflator module of claim 7, wherein said igniter material is arranged on portions of said propellant not in contact with said housing such that said propellant is completely enclosed by said housing and said igniter material.

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9. The inflator module of claim 7, wherein said housing includes an opening through which gas flows to inflate the airbag and an elongate wall opposite said opening, said propellant being affixed to

10 said wall and said igniter material being arranged between said propellant and said opening such that upon
5 ignition of said igniter material, said propellant burns in a direction toward said wall.

10. The inflator module of claim 1, further comprising igniter material arranged on portions of
5 said propellant not in contact with said housing such that said propellant is completely enclosed by said
housing and said igniter material.

10. The inflator module of claim 10, wherein said propellant extends in a longitudinal direction
of said housing, said igniter material being substantially coextensive with said propellant such that upon
ignition of said igniter material, said propellant begins to burn across its entire length.

15. The inflator module of claim 10, wherein said propellant and said igniter material have a
length in the longitudinal direction exceeding ten times a width or thickness of said propellant and said
igniter material in a direction transverse to the longitudinal direction.

20. The inflator module of claim 10, wherein said housing includes an opening through which
gas flows to inflate the airbag, further comprising an elongate screen arranged adjacent said opening and
opposite said igniter material.

25. The inflator module of claim 13, wherein said housing includes an elongate wall opposite
said opening, said propellant being affixed to said wall and said igniter material being arranged between
said propellant and said opening such that upon ignition of said igniter material, said propellant burns in a
direction toward said wall.

30. An inflator system arranged in a vehicle for inflating an airbag, comprising:
an elongate block of propellant; and
a layer of igniter material arranged on said propellant and being substantially coextensive with said
propellant in a longitudinal direction such that upon ignition of said igniter material, said propellant begins
to burn across its entire length.

16. In a vehicle having a passenger compartment, an airbag module to protect an occupant in
the passenger compartment in the event of a crash of the vehicle, the module comprising:

an airbag housing;
at least one airbag situated in said airbag housing;
an inflator module arranged in said airbag housing for inflating said at least one airbag, said inflator module comprising an elongate inflator housing and an elongate block of propellant arranged in
5 said inflator housing and generating gas when burning;
an initiator for initiating said inflator module to produce gas in response to the crash of the vehicle;
and
a cover for releasably retaining said at least one airbag in said airbag housing.

10 17. The module of claim 16, wherein said propellant has a substantially uniform cross-sectional shape in a longitudinal direction of said propellant.

15 18. The module of claim 16, wherein said inflator housing includes an opening through which gas flows to inflate said at least one airbag.

20 19. The module of claim 18, wherein said opening is elongate and oriented in the same direction as said propellant.

25 20. The module of claim 19, further comprising an elongate screen arranged adjacent said opening and opposite said propellant.

21. The module of claim 16, further comprising igniter material arranged on said propellant and substantially coextensive with said propellant in a longitudinal direction such that upon ignition of said igniter material, said propellant begins to burn across its entire length

25 22. The module of claim 21, wherein said igniter material is arranged on portions of said propellant not in contact with said inflator housing such that said propellant is completely enclosed by said inflator housing and said igniter material.

30 23. The module of claim 21, wherein said inflator housing includes an elongate wall opposite said opening, said propellant being affixed to said wall and said igniter material being arranged between

10 said propellant and said opening such that upon ignition of said igniter material, said propellant burns in a direction toward said wall.

15 24. The module of claim 16, further comprising igniter material arranged on portions of said propellant not in contact with said inflator housing such that said propellant is completely enclosed by said inflator housing and said igniter material.

20 25. The module of claim 24, wherein said propellant extends in a longitudinal direction of said inflator housing, said igniter material being substantially coextensive with said propellant such that upon ignition of said igniter material, said propellant begins to burn across its entire length.

25 26. The module of claim 24, wherein said inflator housing includes an opening through which gas flows to inflate said at least one airbag, further comprising an elongate screen arranged adjacent said opening and opposite said igniter material.

30 27. The module of claim 26, wherein said inflator housing includes an elongate wall opposite said opening, said propellant being affixed to said wall and said igniter material being arranged between said propellant and said opening such that upon ignition of said igniter material, said propellant burns in a direction toward said wall.

28. In a vehicle having a passenger compartment, an airbag module to protect an occupant in the passenger compartment in the event of a crash of the vehicle, the module comprising:

an airbag housing;

at least one airbag situated in said airbag housing;

25 an inflator system arranged in said airbag housing for inflating said at least one airbag, said inflator system comprising an elongate block of propellant and a layer of igniter material arranged on said propellant and being substantially coextensive with said propellant in a longitudinal direction such that upon ignition of said igniter material, said propellant begins to burn across its entire length;

an initiator for initiating said inflator system to produce gas in response to the crash of the vehicle;

30 and

a cover for releasably retaining said at least one airbag in said airbag housing.

29. A vehicle, comprising:

an airbag module including

an airbag housing,

at least one airbag situated in said airbag housing;

5 an inflator module arranged in said airbag housing for inflating said at least one airbag, said inflator module comprising an elongate inflator housing and an elongate block of propellant arranged in said inflator housing and generating gas when burning,

an initiator for initiating said inflator module to produce gas in response to the crash of the vehicle, and

10 a cover for releasably retaining said at least one airbag in said airbag housing;

said airbag module being arranged along a side of the vehicle such that each of said at least one airbag inflates along the side of the vehicle.

15 30. The vehicle of claim 29, wherein said at least one airbag is a single airbag arranged to extend from a location in front of a B-pillar of the vehicle to a location behind the B-pillar such that said airbag is restrained by the B-pillar upon inflation.

20 31. The vehicle of claim 29, wherein said airbag module is mounted to a ceiling of the vehicle.

32. The vehicle of claim 29, wherein said airbag module is mounted adjacent to and slightly away from the side of the vehicle.

25 33. The vehicle of claim 29, wherein said inflator module further comprises igniter material arranged on said propellant and substantially coextensive with said propellant in a longitudinal direction such that upon ignition of said igniter material, said propellant begins to burn across its entire length.

34. The vehicle of claim 29, wherein said inflator module further comprises igniter material arranged on portions of said propellant not in contact with said inflator housing such that said propellant is completely enclosed by said inflator housing and said igniter material.

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35. A vehicle, comprising:

an airbag module including

an airbag housing,

at least one airbag situated in said airbag housing,

an inflator system arranged in said airbag housing for inflating said at least one airbag, said

inflator system comprising an elongate block of propellant and a layer of igniter material arranged on said

5 propellant and being substantially coextensive with said propellant in a longitudinal direction such that upon ignition of said igniter material, said propellant begins to burn across its entire length,

an initiator for initiating said inflator system to produce gas in response to the crash of the vehicle,

and

a cover for releasably retaining said at least one airbag in said airbag housing,

10 said airbag module being arranged along a side of the vehicle such that each of said at least one

airbag inflates along the side of the vehicle.

15 36. The vehicle of claim 35, wherein said at least one airbag is a single airbag arranged to extend from a location in front of a B-pillar of the vehicle to a location behind the B-pillar such that said airbag is restrained by the B-pillar upon inflation.

20 37. The vehicle of claim 35, wherein said airbag module is mounted to a ceiling of the vehicle.

38. The vehicle of claim 35, wherein said airbag module is mounted adjacent to and slightly

25 away from the side of the vehicle.

39. An inflator module for inflating an airbag with gas, comprising:

an elongate housing including an elongate bottom wall, a pair of opposed longitudinally extending walls connected to said bottom wall and opposed lateral end walls connected to said bottom wall to thereby define a reaction chamber between said bottom wall, said longitudinally extending walls and said lateral walls; and

25 an elongate block of propellant arranged in said reaction chamber and generating gas when burning, said propellant being arranged along substantially the entire length of said longitudinally extending walls.

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40. The inflator module of claim 39, wherein said propellant has a substantially uniform cross-sectional shape in a longitudinal direction of said propellant.

41. The inflator module of claim 39, wherein said propellant has a length in the longitudinal direction exceeding ten times a width or thickness of said propellant in a direction transverse to the longitudinal direction.

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42. The inflator module of claim 39, wherein said housing includes an opening opposite said bottom wall through which gas flows to inflate the airbag.

43. The inflator module of claim 42, wherein said opening is elongate and oriented in the same

10 direction as said propellant.

44. The inflator module of claim 42, further comprising an elongate screen arranged adjacent said opening and opposite said propellant.

45. The inflator module of claim 39, further comprising igniter material arranged on said propellant and being substantially coextensive with said propellant in a longitudinal direction such that upon ignition of said igniter material, said propellant begins to burn across its entire length.

46. The inflator module of claim 45, wherein said igniter material is arranged on portions of said propellant not in contact with said bottom wall, said longitudinally extending walls and said lateral walls such that said propellant is completely enclosed by said housing and said igniter material.

47. The inflator module of claim 45, wherein said housing includes an opening in a top wall opposite said bottom wall through which gas flows to inflate the airbag, said propellant being affixed to said bottom wall and said igniter material being arranged between said propellant and said opening such that upon ignition of said igniter material, said propellant burns in a direction toward said top wall.